SUBSTITUTE SEQUENCE LISTING

<110> Bihain, Bernard
      Bougueleret, Lydie
      Yen-Potin, Frances

<120> LSR Receptor, Its Activity, Its Cloning and Its Application To
      The Diagnosis Prevention And/or Treatment of Obesity and
      Related Risks or Complications

<130> GENSET.035APC

<150> FR 97/10088
<151> 1997-08-06

<150> FR 98/05032
<151> 1998-04-22

<160> 41

<170> Patent.pm

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<211> 2097
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ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc   235
                                           Met Ala Pro Ala Ala Gly
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gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg   283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10   15   20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag   331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25   30   35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg   379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
        40   45   50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc   427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55   60   65   70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc   475

1

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Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
             75                  80                  85

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Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
             90                  95                 100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
           120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt ggc agg acc tca gag gcc cct gag ctc cta cct ggt      811
Leu Ile Val Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly
            185                 190                 195

ttt cgg gcg ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc      859
Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys
            200                 205                 210

ctg gcg agc ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag      907
Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln
215                 220                 225                 230

tgc tgt cct cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca      955
Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro
            235                 240                 245

gac aag tgc tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc     1003
Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala
            250                 255                 260

acc tca ggt gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc     1051
Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu
            265                 270                 275

tca cct gcc aag acc cca cca cct ccg cct gcc atg att ccc atg ggc     1099
Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly
            280                 285                 290

cct ccc tat ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt     1147
Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly
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2

ggc cac agc tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta   1195
Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val
            315   320   325

tct tca gaa gta cga agt ggc tac agg atc cag gct aac cag caa gat   1243
Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp
            330   335   340

gac tcc atg agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt   1291
Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe
            345   350   355

gac cct tcc cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg   1339
Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met
            360   365   370

agt gaa gta acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc   1387
Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser
375   380   385   390

agg gct cct gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac   1435
Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His
            395   400   405

tcc cca cag agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa   1483
Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln
            410   415   420

cca agg ggt ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat   1531
Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp
            425   430   435

gct cta gat gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct   1579
Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser
            440   445   450

tct ccc cca agt agt gga cgg aga gga cgg gcc tat gca cct cca aga   1627
Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg
455   460   465   470

agt cgc agc cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg   1675
Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu
            475   480   485

cca cat tcc cga gat ccc cac tat tat gac gac atc agg tct aga gat   1723
Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp
            490   495   500

cca cgt gct gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat   1771
Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp
            505   510   515

gct ggc ttc agg tca agg gac cct cag tat gat ggg cga cta tta gaa   1819
Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu
            520   525   530

3

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gag gct tta aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg      1867
Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg
535             540             545             550

gag gaa gaa gag gaa gag gag ggc caa tac ccc cca gca cct cca cct      1915
Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro
            555             560             565

tac tca gag act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag      1963
Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys
            570             575             580

aat ttg gcc ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt          2009
Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val *
        585             590

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ataaaatgtc taatcacaaa aaaaaaaa                                       2097


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Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
        35              40              45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50              55              60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65              70              75              80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85              90              95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
        100             105             110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115             120             125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
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Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
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4

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        145                    150                    155                    160
   Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                 165                    170                    175

   Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
                 180                    185                    190

   Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
                 195                    200                    205

   Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu
       210                    215                    220

   Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
   225                    230                    235                    240

   Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
                 245                    250                    255

   Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
                 260                    265                    270

   Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
                 275                    280                    285

   Ala Met Ile Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
       290                    295                    300

   Arg His Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
   305                    310                    315                    320

   Asp Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
                 325                    330                    335

   Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
                 340                    345                    350

   Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
                 355                    360                    365

   Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
       370                    375                    380

   Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
   385                    390                    395                    400

   Glu Glu Trp Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln
                 405                    410                    415

   Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
                 420                    425                    430

   Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
                 435                    440                    445

   Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
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5

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    Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
    465             470             475             480

    Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
                485             490             495

    Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
                500             505             510

    Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
            515             520             525

    Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu
            530             535             540

    Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Gly Gln Tyr
    545             550             555             560

    Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
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    Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
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Val
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ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc    235
                                          Met Ala Pro Ala Ala Gly
                                          1               5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg    283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10              15              20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag    331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25              30              35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg    379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40              45              50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc    427
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Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55                  60                  65                  70


gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc       475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
                75                  80                  85


ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct       523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
                90                  95                  100


ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc       571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105                 110                 115


act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga       619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
        120                 125                 130


gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg       667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135             140                 145                 150


acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct       715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
                155                 160                 165


gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag       763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180


ctc atc gtc ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gcg agc       811
Leu Ile Val Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
            185                 190                 195


ctc ctc ctc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt cct       859
Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
        200                 205                 210


cac acc tgc tgc tgc tat gtc cga tgt ccc tgc tgc cca gac aag tgc       907
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
215                 220                 225                 230


tgt tgc cct gag gct ctt tat gct gct ggc aaa gca gcc acc tca ggt       955
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
                235                 240                 245


gtc ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc      1003
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
            250                 255                 260


aag acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat      1051
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr
            265                 270                 275


ggg tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc      1099
Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser
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tcc caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa     1147
Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu
295             300             305             310

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg     1195
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
                315             320             325

agg gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc     1243
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
                330             335             340

cga cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta     1291
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
        345             350             355

acc tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct     1339
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
        360             365             370

gcc ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag     1387
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln
375             380             385             390

agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt     1435
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
                395             400             405

ggt tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat     1483
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
        410             415             420

gat atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca     1531
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
        425             430             435

agt agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc     1579
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
        440             445             450

cgg gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc     1627
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
455             460             465             470

cga gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct     1675
Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala
                475             480             485

gac ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc     1723
Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe
                490             495             500

agg tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta     1771
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
        505             510             515
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8

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aag aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa      1819
Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
    520             525             530

gag gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag      1867
Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu
535             540             545             550

act gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc      1915
Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala
            555             560             565

ctg agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct           1962
Leu Ser Arg Glu Ser Leu Val Val  *
            570

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            20                  25                  30

Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
            35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160
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9

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Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
            165                 170                 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
            180                 185                 190

Val Val Cys Leu Ala Ser Leu Leu Leu Phe Leu Leu Leu Gly Ile Cys
            195                 200                 205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210                 215                 220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225                 230                 235                 240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
            245                 250                 255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
            260                 265                 270

Pro Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser
            275                 280                 285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp
    290                 295                 300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305                 310                 315                 320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
            325                 330                 335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
            340                 345                 350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
            355                 360                 365

Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370                 375                 380

Asn Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385                 390                 395                 400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
            405                 410                 415

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420                 425                 430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
            435                 440                 445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450                 455                 460
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10

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Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg
465             470             475             480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp    .
                485             490             495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
                500             505             510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg
            515             520             525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala
        530             535             540

Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg
545             550             555             560

Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
                565             570


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ggggacgcgc gggcaccgtc gctgctagac ggccgcg atg gcg ccg gcg gcc ggc   235
                                          Met Ala Pro Ala Ala Gly
                                          1               5

gcg tgt gct ggg gcg cct gac tcc cac cca gct acc gtg gtc ttc gtg   283
Ala Cys Ala Gly Ala Pro Asp Ser His Pro Ala Thr Val Val Phe Val
            10              15              20

tgt ctc ttt ctc atc att ttc tgc cca gac cct gcc agt gcc atc cag   331
Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp Pro Ala Ser Ala Ile Gln
        25              30              35

gtg act gtg tct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg   379
Val Thr Val Ser Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val
    40              45              50

acc ctg ccc tgc acc tat cag atg agc aac act ctc aca gtc ccc atc   427
Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Val Pro Ile
55              60              65              70

gtg atc tgg aag tac aag tca ttc tgc cgg gac cgt att gcc gat gcc   475
Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala
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11

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ttc tct cct gcc agt gtg gac aac cag cta aat gcc cag ttg gca gct      523
Phe Ser Pro Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala
            90                  95                  100

ggc aac ccc ggc tac aac ccc tat gtg gag tgc cag gac agt gta cgc      571
Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg
            105                 110                 115

act gtc agg gtg gtg gcc acc aaa cag ggc aat gcg gtg acc ctg gga      619
Thr Val Arg Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly
            120                 125                 130

gac tac tac caa ggc agg agg atc acc ata aca gga aat gct gac ctg      667
Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu
135                 140                 145                 150

acc ttc gag cag aca gcc tgg gga gac agt gga gtg tat tac tgc tct      715
Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser
            155                 160                 165

gtg gtc tcg gcc caa gat ctg gat gga aac aac gag gcg tac gca gag      763
Val Val Ser Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu
            170                 175                 180

ctc atc gtc ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtc      811
Leu Ile Val Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val
            185                 190                 195

ccg agc atc tat gcc ccc agc atc tat acc cac ctc tca cct gcc aag      859
Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys
            200                 205                 210

acc cca cca cct ccg cct gcc atg att ccc atg ggc cct ccc tat ggg      907
Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Pro Tyr Gly
215                 220                 225                 230

tac cct gga gac ttt gac aga cat agc tca gtt ggt ggc cac agc tcc      955
Tyr Pro Gly Asp Phe Asp Arg His Ser Ser Val Gly Gly His Ser Ser
            235                 240                 245

caa gta ccc ctg ctg cgt gac gtg gat ggc agt gta tct tca gaa gta     1003
Gln Val Pro Leu Leu Arg Asp Val Asp Gly Ser Val Ser Ser Glu Val
            250                 255                 260

cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg     1051
Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg
            265                 270                 275

gtc cta tac tat atg gag aaa gag cta gcc aac ttt gac cct tcc cga     1099
Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
            280                 285                 290

cct ggc cct ccc aat ggc aga gtg gaa cgg gcc atg agt gaa gta acc     1147
Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
295                 300                 305                 310
```

12

```
tcc ctc cat gaa gat gac tgg cga tcg agg cct tcc agg gct cct gcc    1195
Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala
            315             320             325

ctc acc ccc atc agg gat gag gag tgg aat cgc cac tcc cca cag agt    1243
Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Gln Ser
            330             335             340

ccc aga aca tgg gag cag gaa ccc ctt caa gaa caa cca agg ggt ggt    1291
Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly
            345             350             355

tgg ggg tct gga cgc cct cgg gcc cgc tct gtg gat gct cta gat gat    1339
Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
    360             365             370

atc aac cgg cct ggc tcc act gaa tca gga cgg tct tct ccc cca agt    1387
Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser
375             380             385             390

agt gga cgg aga gga cgg gcc tat gca cct cca aga agt cgc agc cgg    1435
Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg
            395             400             405

gat gac ctc tat gac ccg gac gat cct agg gac ttg cca cat tcc cga    1483
Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg
            410             415             420

gat ccc cac tat tat gac gac atc agg tct aga gat cca cgt gct gac    1531
Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser Arg Asp Pro Arg Ala Asp
            425             430             435


ccc aga tcc cgt cag cga tcc cga gat cct cgg gat gct ggc ttc agg    1579
Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro Arg Asp Ala Gly Phe Arg
            440             445             450

tca agg gac cct cag tat gat ggg cga cta tta gaa gag gct tta aag    1627
Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys
455             460             465             470

aaa aag ggg tcg ggc gag aga agg agg gtt tac agg gag gaa gaa gag    1675
Lys Lys Gly Ser Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu
            475             480             485

gaa gag gag ggc caa tac ccc cca gca cct cca cct tac tca gag act    1723
Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr
            490             495             500

gac tcg cag gcc tca cgg gag agg agg ctg aaa aag aat ttg gcc ctg    1771
Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu
            505             510             515

agt cgg gaa agt tta gtc gtc tga tccacgtttt gtatgtagct tttgtacttt  1825
Ser Arg Glu Ser Leu Val Val  *
```

13

tttttttaatt ggaatcaata ttgatgaaac ttcaagccta ataaaatgtc taatcacaaa   1885

aaaaaaaa   1893

<210> 6
<211> 525
<212> PRT
<213> Rattus norvegicus

<400> 6
Met Ala Pro Ala Ala Gly Ala Cys Ala Gly Ala Pro Asp Ser His Pro
1   5   10   15

Ala Thr Val Val Phe Val Cys Leu Phe Leu Ile Ile Phe Cys Pro Asp
            20   25   30

Pro Ala Ser Ala Ile Gln Val Thr Val Ser Asp Pro Tyr His Val Val
            35   40   45

Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Ser Asn
    50   55   60

Thr Leu Thr Val Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65   70   75   80

Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85   90   95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100   105   110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130   135   140

Thr Gly Asn Ala Asp Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
            180   185   190

Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
            195   200   205

His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210   215   220

Met Gly Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg His Ser Ser

14

Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Asp Val Asp Gly
            245   250   255

Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
            260   265   270

Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
            275   280   285

Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
    290   295   300

Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305   310   315   320

Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
            325   330   335

Arg His Ser Pro Gln Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
            340   345   350

Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
            355   360   365

Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
    370   375   380

Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385   390   395   400

Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
            405   410   415

Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Ile Arg Ser
            420   425   430

Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser Arg Asp Pro
            435   440   445

Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
    450   455   460

Leu Glu Glu Ala Leu Lys Lys Lys Gly Ser Gly Glu Arg Arg Arg Val
465   470   475   480

Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly Gln Tyr Pro Pro Ala Pro
            485   490   495

Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu
            500   505   510

Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
    515   520   525

15

<210> 7
<211> 2158
<212> DNA
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 1259..1261
<223> Potential splicing site AAG

<221> Misc_Feature
<222> 1657
<223> Potential insertion of a AGG

<400> 7

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tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc      60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac     115
                                              Met Gln Gln Asp
                                               1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg     163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
 5                  10                  15                  20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga     211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                 25                  30                  35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg     259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
             40                  45                  50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc     307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
         55                  60                  65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca     355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
     70                  75                  80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg     403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85                  90                  95                  100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc     451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                 105                 110                 115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc     499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
                 120                 125                 130
```

16

```
cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag        547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
        135                     140                 145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt        595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
        150                 155                     160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag        643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165                     170                     175                 180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc        691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185                     190                 195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac        739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
                200                     205                 210

agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg        787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
            215                     220                 225

aac aat gag gcc tac gca gag ctc atc gtc ctt ggg agg acc tca ggg        835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Gly
        230                     235                 240

gtg gct gag ctc tta cct ggt ttt cag gcg ggg ccc ata gaa gac tgg        883
Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro Ile Glu Asp Trp
245                     250                     255                 260

ctc ttc gtg gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc        931
Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu
                265                     270                 275

ctg ggc atc tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac        979
Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr
            280                     285                 290

gtc agg tgc ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg       1027
Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu
            295                     300                 305

tat gcc gcc ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc       1075
Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
        310                     315                 320

ccc agc acc tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca       1123
Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
325                     330                     335                 340

gct atg att ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac       1171
Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
                345                     350                 355

cct gga gac gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat       1219
```

17

```
Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
        360                     365                 370


gta ccc ctg ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc    1267
Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
        375                     380                 385

agt ggc tac agg att cag gcc agc cag cag gac gac tcc atg cgg gtc    1315
Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val
        390                     395                 400

ctg tac tac atg gag aag gag ctg gcc aac ttc gac cct tct cga cct    1363
Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
405                     410                     415                 420

ggc ccc ccc agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc    1411
Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
                425                     430                 435

ctc cac gag gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc    1459
Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
                440                     445                 450

acc ccg atc cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc    1507
Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
                455                     460                 465

agg gga tgg gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg    1555
Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
        470                     475                 480

cgg gcc agg cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc    1603
Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
485                     490                     495                 500

acc ccg ccg agc acc gcc gag tca ggg agc agg tct ccc acg agt aat    1651
Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
                505                     510                 515

ggt ggg aga agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac    1699
Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
            520                     525                 530

gac ctc tat gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac    1747
Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
            535                     540                 545

ccc cac tac gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc    1795
Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
        550                     555                 560

agg tcc cac cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg    1843
Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
565                     570                     575                 580
```

18

```
tcc ggg gac ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg    1891
Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
            585               590           595

aag aag ggg tcg gag gag agg agg aga ccc cac aag gag gag gag gaa    1939
Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
            600               605           610

gag gcc tac tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg    1987
Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
            615               620           625

cag gcg tcc cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg    2035
Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
        630               635           640

gaa agt tta gtc gtc tga tctgacgttt tctacgtagc ttttgtattt           2083
Glu Ser Leu Val Val  *
645

ttttttttaa tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa  2143

aacgtataat cacaa                                                   2158


<210> 8
<211> 649
<212> PRT
<213> Homo sapiens

<220>

<221> Misc_Feature
<222> 386
<223> Potential deletion of a Glu

<221> Misc_Feature
<222> 518
<223> Potential insertion of a Arg

<400> 8
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5               10              15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20              25              30

·Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35              40              45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50              55              60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65              70              75              80
```

19

```
Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85                      90              95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100             105             110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
            115             120             125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
        130             135             140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145             150             155             160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165             170             175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
            180             185             190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195             200             205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210             215             220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly
225             230             235             240

Arg Thr Ser Gly Val Ala Glu Leu Leu Pro Gly Phe Gln Ala Gly Pro
            245             250             255

Ile Glu Asp Trp Leu Phe Val Val Val Cys Leu Ala Ala Phe Leu
            260             265             270

Ile Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr
        275             280             285

Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys
    290             295             300

Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro
305             310             315             320

Ser Ile Tyr Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr
            325             330             335

Pro Pro Pro Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr
            340             345             350

Pro Gly Gly Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly
        355             360             365

Gln Gly Ser Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala
    370             375             380
```

20

```
Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp
385             390             395             400

Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp
            405             410             415

Pro Ser Arg Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser
        420             425             430

Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg
        435             440             445

Gly Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser
    450             455             460

Pro Arg Ser Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala
465             470             475             480

Gly Gly Gly Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala
            485             490             495

Leu Asp Asp Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser
        500             505             510

Pro Thr Ser Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser
        515             520             525

Arg Ser Arg Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro
    530             535             540

Arg Ser Arg Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro
545             550             555             560

Pro Ala Asp Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp
            565             570             575

Asn Gly Ser Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu
            580             585             590

Glu Ala Val Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys
        595             600             605

Glu Glu Glu Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
    610             615             620

Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu
625             630             635             640

Ala Leu Ser Arg Glu Ser Leu Val Val
            645
```

<210> 9
<211> 2101
<212> DNA
<213> Homo sapiens

21

<400> 9

tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc   60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac   115
                                               Met Gln Gln Asp
                                               1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg   163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5   10   15   20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga   211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25   30   35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg   259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
            40   45   50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc   307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
        55   60   65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca   355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
    70   75   80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg   403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85   90   95   100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc   451
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
                105   110   115

tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc   499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
                120   125   130

cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag   547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
        135   140   145

ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt   595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
    150   155   160

gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag   643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165   170   175   180

ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc   691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
                185   190   195

atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac   739

22

```
      Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
                  200                 205                 210

      agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg      787
      Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
                  215             220                 225

      aac aat gag gcc tac gca gag ctc atc gtc ctt gac tgg ctc ttc gtg      835
      Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val
                  230             235                 240

      gtt gtg gta tgc ctg gct gcc ttc ctc atc ttc ctc ctc ctg ggc atc      883
      Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu Leu Leu Gly Ile
      245                 250                 255                 260

      tgc tgg tgc cag tgc tgc ccg cac act tgc tgc tgc tac gtc agg tgc      931
      Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys
          .           265                 270                 275

      ccc tgc tgc cca gac aag tgc tgc tgc ccc gag gcc ctg tat gcc gcc      979
      Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala
                  280         .       285                 290

      ggc aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc      1027
      Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr
                  295                 300                 305

      tat gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att      1075
      Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Ala Met Ile
          310                 315                 320

      ccc atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac      1123
      Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp
      325                 330                 335                 340

      gtt gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg      1171
      Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu
                  345                 350                 355

      ctt cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac      1219
      Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr
                  360                 365                 370

      agg att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac      1267
      Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr
                  375                 380                 385

      atg gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc      1315
      Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro
          390                 395                 400


      agt ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag      1363
      Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu
      405                 410                 415                 420
```

23

```
gac gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc     1411
Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile
                425                 430                 435

cgg gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg     1459
Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp
                440                 445                 450

gac cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg     1507
Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg
                455                 460                 465

cgg ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg     1555
Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro
        470                 475                 480

agc acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga     1603
Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg
485                 490                 495                 500

agc cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat     1651
Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr
                505                 510                 515

gac caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac     1699
Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr
                520                 525                 530

gac gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac     1747
Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His
                535                 540                 545

cac cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac     1795
His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp
        550                 555                 560

ctc ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg     1843
Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly
565                 570                 575                 580

tcg gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac     1891
Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr
                585                 590                 595

tac ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc     1939
Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
                600                 605                 610

cga gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta     1987
Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
                615                 620                 625

gtc gtc tga tctgacgttt tctacgtagc ttttgtattt ttttttttaa           2036
Val Val  *
        630

tttgaaggaa cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat  2096
```

<210> 10
<211> 630
<212> PRT
<213> Homo sapiens

<400> 10
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1   5   10   15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20   25   30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35   40   45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50   55   60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65   70   75   80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85   90   95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100   105   110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115   120   125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130   135   140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145   150   155   160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165   170   175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
        180   185   190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195   200   205

Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210   215   220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp
225   230   235   240

Trp Leu Phe Val Val Val Val Cys Leu Ala Ala Phe Leu Ile Phe Leu

```
                    245                    250                    255

Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys
        260                 265                 270

Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala
        275                 280                 285

Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr
        290                 295                 300

Ala Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro
305                 310                 315                 320

Pro Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly
            325                 330                 335

Tyr Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser
            340                 345                 350

Tyr Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val
        355                 360                 365

Arg Ser Gly Tyr Arg Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg
    370                 375                 380

Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg
385                 390                 395                 400

Pro Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr
            405                 410                 415

Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala
            420                 425                 430

Leu Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser
        435                 440                 445

Pro Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly
    450                 455                 460

Trp Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp
465                 470                 475                 480

Leu Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser
            485                 490                 495

Asn Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg
            500                 505                 510

Asp Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg
        515                 520                 525

Asp Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp
        530                 535                 540

Pro Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser
```

26

Arg Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val
                565   570   575

Arg Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu
                580   585   590

Glu Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
        595   600   605

Ser Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser
        610   615   620

Arg Glu Ser Leu Val Val   ,
625   630

<210> 11
<211> 1954
<212> DNA
<213> Homo sapiens

<400> 11
tggagtgtgg ctcggaggac cgcggcgggt caagcacctt tctcccccat atctgaaagc   60

atgccctttg tccacgtcgt ttacgctcat taaaacttcc aga atg caa cag gac   115
                                                Met Gln Gln Asp
                                                1

gga ctt gga gta ggg aca agg aac gga agt ggg aag ggg agg agc gtg   163
Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys Gly Arg Ser Val
5   10   15   20

cac ccc tcc tgg cct tgg tgc gcg ccg cgc ccc cta agg tac ttt gga   211
His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu Arg Tyr Phe Gly
                25   30   35

agg gac gcg cgg gcc aga cgc gcc cag acg gcc gcg atg gcg ctg ttg   259
Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala Met Ala Leu Leu
            40   45   50

gcc ggc ggg ctc tcc aga ggg ctg ggc tcc cac ccg gcc gcc gca ggc   307
Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro Ala Ala Ala Gly
        55   60   65

cgg gac gcg gtc gtc ttc gtg tgg ctt ctg ctt agc acc tgg tgc aca   355
Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser Thr Trp Cys Thr
        70   75   80

gct cct gcc agg gcc atc cag gtg acc gtg tcc aac ccc tac cac gtg   403
Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn Pro Tyr His Val
85   90   95   100

gtg atc ctc ttc cag cct gtg acc ctg ccc tgt acc tac cag atg acc   451

27

```
Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr Tyr Gln Met Thr
              105               110                   115


tcg acc ccc acg caa ccc atc gtc atc tgg aag tac aag tct ttc tgc    499
Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys
              120               125                   130


cgg gac cgc atc gcc gat gcc ttc tcc ccg gcc agc gtc gac aac cag    547
Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln
              135               140                   145


ctc aat gcc cag ctg gca gcc ggg aac cca ggc tac aac ccc tac gtt    595
Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val
              150               155                   160


gag tgc cag gac agc gtg cgc acc gtc agg gtc gtg gcc acc aag cag    643
Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln
165               170               175                   180


ggc aac gct gtg acc ctg gga gat tac tac cag ggc cgg agg att acc    691
Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr
              185               190                   195


atc acc gga aat gct gac ctg acc ttt gac cag acg gcg tgg ggg gac    739
Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr Ala Trp Gly Asp
              200               205                   210


agt ggt gtg tat tac tgc tcc gtg gtc tca gcc cag gac ctc cag ggg    787
Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Gln Gly
              215               220                   225


aac aat gag gcc tac gca gag ctc atc gtc ctt gtg tat gcc gcc ggc    835
Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly
      230               235               240


aaa gca gcc acc tca ggt gtt ccc agc att tat gcc ccc agc acc tat    883
Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Thr Tyr
245               250               255               260


gcc cac ctg tct ccc gcc aag acc cca ccc cca cca gct atg att ccc    931
Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
              265               270               275


atg ggc cct gcc tac aac ggg tac cct gga gga tac cct gga gac gtt    979
Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr Pro Gly Asp Val
              280               285               290


gac agg agt agc tca gct ggt ggc caa ggc tcc tat gta ccc ctg ctt    1027
Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr Val Pro Leu Leu
              295               300               305


cgg gac acg gac agc agt gtg gcc tct gaa gtc cgc agt ggc tac agg    1075
Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg Ser Gly Tyr Arg
              310               315               320


att cag gcc agc cag cag gac gac tcc atg cgg gtc ctg tac tac atg    1123
Ile Gln Ala Ser Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met
```

28

```
gag aag gag ctg gcc aac ttc gac cct tct cga cct ggc ccc ccc agt       1171
Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Ser
                    345                 350                 355

ggc cgt gtg gag cgg gcc atg agt gaa gtc acc tcc ctc cac gag gac       1219
Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp
                360                 365                 370

gac tgg cga tct cgg cct tcc cgg ggc cct gcc ctc acc ccg atc cgg       1267
Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu Thr Pro Ile Arg
            375                 380                 385

gat gag gag tgg ggt ggc cac tcc ccc cgg agt ccc agg gga tgg gac       1315
Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro Arg Gly Trp Asp
        390                 395                 400

cag gag ccc gcc agg gag cag gca ggc ggg ggc tgg cgg gcc agg cgg       1363
Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp Arg Ala Arg Arg
405                 410                 415                 420

ccc cgg gcc cgc tcc gtg gac gcc ctg gac gac ctc acc ccg ccg agc       1411
Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu Thr Pro Pro Ser
                425                 430                 435

acc gcc gag tca ggg agc agg tct ccc acg agt aat ggt ggg aga agc       1459
Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn Gly Gly Arg Ser
                440                 445                 450

cgg gcc tac atg ccc ccg cgg agc cgc agc cgg gac gac ctc tat gac       1507
Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp
                455                 460                 465

caa gac gac tcg agg gac ttc cca cgc tcc cgg gac ccc cac tac gac       1555
Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp Pro His Tyr Asp
        470                 475                 480

gac ttc agg tct cgg gag cgc cct cct gcc gac ccc agg tcc cac cac       1603
Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro Arg Ser His His
485                 490                 495                 500

cac cgt acc cgg gac cct cgg gac aac ggc tcc agg tcc ggg gac ctc       1651
His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg Ser Gly Asp Leu
                505                 510                 515

ccc tat gat ggg cgg cta ctg gag gag gct gtg agg aag aag ggg tcg       1699
Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg Lys Lys Gly Ser
                520                 525                 530

gag gag agg agg aga ccc cac aag gag gag gag gaa gag gcc tac tac       1747
Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu Glu Ala Tyr Tyr
                535                 540                 545

ccg ccc gcg ccg ccc ccg tac tcg gag acc gac tcg cag gcg tcc cga       1795
Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg
        550                 555                 560
```

29

```
gag cgc agg ctc aag aag aac ttg gcc ctg agt cgg gaa agt tta gtc        1843
Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val
565                 570                 575                 580

gtc tga tctgacgttt tctacgtagc ttttgtattt tttttttttaa tttgaaggaa        1899
Val  *

cactgatgaa gccctgccat acccctcccg agtctaataa aacgtataat cacaa          1954
```

```
<400> 12
Met Gln Gln Asp Gly Leu Gly Val Gly Thr Arg Asn Gly Ser Gly Lys
1               5                   10                  15

Gly Arg Ser Val His Pro Ser Trp Pro Trp Cys Ala Pro Arg Pro Leu
            20                  25                  30

Arg Tyr Phe Gly Arg Asp Ala Arg Ala Arg Arg Ala Gln Thr Ala Ala
        35                  40                  45

Met Ala Leu Leu Ala Gly Gly Leu Ser Arg Gly Leu Gly Ser His Pro
    50                  55                  60

Ala Ala Ala Gly Arg Asp Ala Val Val Phe Val Trp Leu Leu Leu Ser
65                  70                  75                  80

Thr Trp Cys Thr Ala Pro Ala Arg Ala Ile Gln Val Thr Val Ser Asn
            85                  90                  95

Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu Pro Cys Thr
            100                 105                 110

Tyr Gln Met Thr Ser Thr Pro Thr Gln Pro Ile Val Ile Trp Lys Tyr
        115                 120                 125

Lys Ser Phe Cys Arg Asp Arg Ile Ala Asp Ala Phe Ser Pro Ala Ser
    130                 135                 140

Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr
145                 150                 155                 160

Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg Val Val
            165                 170                 175

Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly
        180                 185                 190

Arg Arg Ile Thr Ile Thr Gly Asn Ala Asp Leu Thr Phe Asp Gln Thr
        195                 200                 205
```

```
Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln
    210                 215             220

Asp Leu Gln Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val
225                 230             235                 240

Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala
            245             250             255

Pro Ser Thr Tyr Ala His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro
            260             265             270

Ala Met Ile Pro Met Gly Pro Ala Tyr Asn Gly Tyr Pro Gly Gly Tyr
        275             280             285

Pro Gly Asp Val Asp Arg Ser Ser Ser Ala Gly Gly Gln Gly Ser Tyr
    290             295             300

Val Pro Leu Leu Arg Asp Thr Asp Ser Ser Val Ala Ser Glu Val Arg
305                 310             315                 320

Ser Gly Tyr Arg Ile Gln Ala Ser Gln Asp Asp Ser Met Arg Val
            325             330             335

Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro
            340             345             350

Gly Pro Pro Ser Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser
    355             360             365

Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Gly Pro Ala Leu
    370             375             380

Thr Pro Ile Arg Asp Glu Glu Trp Gly Gly His Ser Pro Arg Ser Pro
385             390             395                 400

Arg Gly Trp Asp Gln Glu Pro Ala Arg Glu Gln Ala Gly Gly Gly Trp
            405             410             415

Arg Ala Arg Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Leu
        420             425             430

Thr Pro Pro Ser Thr Ala Glu Ser Gly Ser Arg Ser Pro Thr Ser Asn
    435             440             445

Gly Gly Arg Ser Arg Ala Tyr Met Pro Pro Arg Ser Arg Ser Arg Asp
    450             455             460

Asp Leu Tyr Asp Gln Asp Asp Ser Arg Asp Phe Pro Arg Ser Arg Asp
465             470             475                 480

Pro His Tyr Asp Asp Phe Arg Ser Arg Glu Arg Pro Pro Ala Asp Pro
            485             490             495

Arg Ser His His His Arg Thr Arg Asp Pro Arg Asp Asn Gly Ser Arg
        500             505             510
```

Ser Gly Asp Leu Pro Tyr Asp Gly Arg Leu Leu Glu Glu Ala Val Arg
        515   520   525

Lys Lys Gly Ser Glu Glu Arg Arg Arg Pro His Lys Glu Glu Glu Glu
        530   535   540

Glu Ala Tyr Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
545   550   555   560

Gln Ala Ser Arg Glu Arg Arg Leu Lys Lys Asn Leu Ala Leu Ser Arg
            565   570   575

Glu Ser Leu Val Val
            580

<210> 13
<211> 1886
<212> DNA
<213> Mus musculus

<400> 13
gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct   52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1   5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt   100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10   15   20   25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg   148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30   35   40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac   196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45   50   55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg   244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
                60   65   70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct   292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
        75   80   85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc   340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90   95   100   105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg   388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110   115   120

32

```
gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac        436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125                 130                 135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag        484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
            140                 145                 150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca        532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
            155                 160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc        580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt ggc agg acc tca gaa gcc cct gag ctc cta cct ggt ttt cgg gcg        628
Leu Gly Arg Thr Ser Glu Ala Pro Glu Leu Leu Pro Gly Phe Arg Ala
                190                 195                 200

ggg ccc ttg gaa gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc        676
Gly Pro Leu Glu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser
                205                 210                 215

ctc ctc ttc ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc        724
Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro
                220                 225                 230

cac acc tgc tgc tgc tat gtc aga tgt·ccc tgc tgc cca gac aag tgc        772
His Thr Cys Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys
            235                 240                 245

tgt tgc cct gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt        820
Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly
250                 255                 260                 265

gtg cca agc atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc        868
Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala
                270                 275                 280

aag act ccg cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat        916
Lys Thr Pro Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr
                285                 290                 295

ggg tac cct gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc        964
Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser
                300                 305                 310

tcc cag gtg ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa       1012
Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu
            315                 320                 325

gta cga agt ggc tac agg atc cag gct aac cag caa gat gac tcc atg       1060
Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met
330                 335                 340                 345

agg gtc cta tac tat atg gag aag gag cta gcc aac ttc gat cct tcc       1108
```

33

```
Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser
              350               355                   360

cgg cct ggc cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta      1156
Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val
              365                   370               375

acc tcc ctc cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct      1204
Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro
              380                   385               390

gcc ctc aca ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg      1252
Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg
              395                   400               405

agt ccc aga aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt      1300
Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly
410                   415                   420               425

ggt tgg ggg tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat      1348
Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp
              430                   435               440

gac atc aac cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca      1396
Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro
              445                   450               455

agt agt gga cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc      1444
Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser
              460                   465               470

cgg gat gac ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc      1492
Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser
              475                   480               485

cga gat ccc cac tat tat gat gat ttg agg tct agg gat cca cgt gct      1540
Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala
490                   495                   500               505

gac ccc aga tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc      1588
Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe
              510                   515               520

agg tca cgg gac cct cag tat gat ggg cga ctc tta gaa gag gct tta      1636
Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu
              525                   530               535

aag aaa aaa ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa      1684
Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu
              540                   545               550

gaa gaa gaa gag gag ggc cac tat ccc cca gca cct ccg cct tac tct      1732
Glu Glu Glu Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser
555                   560                   565

gag act gac tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg      1780
Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu
```

34

```
gcc ctg agt cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag      1830
Ala Leu Ser Arg Glu Ser Leu Val Val  *
                    590


cttttatact tttttaattg gaatattgat gaaactcttc accaagccta ataaaa      1886
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<210> 14
<211> 1829
<212> DNA
<213> Mus musculus

<400> 14

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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct      52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1               5


ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt    100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10              15              20              25


ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg    148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30              35              40


cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac    196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
            45              50              55


tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg    244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
        60              65              70


aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct    292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
    75              80              85


gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc    340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90              95              100             105


ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg    388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110             115             120


gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac    436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
            125             130             135


cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag    484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140             145             150
```

```
cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca     532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
        155             160             165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc     580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170             175             180             185

ctt gat tgg ctc ttt gtg gtc gtg gtc tgc ctg gca agc ctc ctc ttc     628
Leu Asp Trp Leu Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe
                190             195             200

ttc ctc ctc ctg ggc atc tgc tgg tgc cag tgc tgt ccc cac acc tgc     676
Phe Leu Leu Leu Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys
                205             210             215

tgc tgc tat gtc aga tgt ccc tgc tgc cca gac aag tgc tgt tgc cct     724
Cys Cys Tyr Val Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro
            220             225             230

gag gcc ctt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc     772
Glu Ala Leu Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser
    235             240             245

atc tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg     820
Ile Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro
250             255             260             265

cca cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct     868
Pro Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro
                270             275             280

gga gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg     916
Gly Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val
            285             290             295

ccc ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt     964
Pro Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser
        300             305             310

ggc tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta     1012
Gly Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu
    315             320             325

tac tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc     1060
Tyr Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly
330             335             340             345

cct ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc     1108
Pro Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu
            350             355             360

cat gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca     1156
His Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr
            365             370             375

ccc atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga     1204
```

36

```
      Pro Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg
          380                 385                 390

      aca tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg     1252
      Thr Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly
          395                 400                 405

      tct ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac     1300
      Ser Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn
      410                 415                 420                 425

      cgg cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga     1348
      Arg Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly
                      430                 435                 440

      cgg aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac     1396
      Arg Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp
                  445                 450                 455

      ctc tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc     1444
      Leu Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro
                  460                 465                 470

      cac tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga     1492
      His Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg
          475                 480                 485

      tcc cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg     1540
      Ser Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg
      490                 495                 500                 505

      gac cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa     1588
      Asp Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys
                      510                 515                 520

      ggg gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa     1636
      Gly Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu
                  525                 530                 535

      gag gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac     1684
      Glu Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp
                  540                 545                 550

      tcg cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt     1732
      Ser Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser
          555                 560                 565

      cgg gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact        1783
      Arg Glu Ser Leu Val Val  *
      570                 575


      tttttaattg gaatattgat gaaactcttc accaagccta ataaaa                   1829
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<210> 15
<211> 1682

37

<212> DNA
<213> Mus musculus

<400> 15
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gcaccgtcgc tgctagacgg ccgcg atg gcg ccg gcg gcc agc gcg tgt gct      52
                            Met Ala Pro Ala Ala Ser Ala Cys Ala
                            1               5

ggg gcg cct ggc tcc cac ccg gcc acc acg atc ttc gtg tgt ctt ttt     100
Gly Ala Pro Gly Ser His Pro Ala Thr Thr Ile Phe Val Cys Leu Phe
10              15                  20                  25

ctc atc att tac tgc cca gac cgt gcc agt gcc atc cag gtg acc gtg     148
Leu Ile Ile Tyr Cys Pro Asp Arg Ala Ser Ala Ile Gln Val Thr Val
                30                  35                  40

cct gac ccc tac cac gta gtg atc ctg ttc cag cca gtg aca cta cac     196
Pro Asp Pro Tyr His Val Val Ile Leu Phe Gln Pro Val Thr Leu His
                45                  50                  55

tgc acc tac cag atg agc aat acc ctc aca gcc cct atc gtg atc tgg     244
Cys Thr Tyr Gln Met Ser Asn Thr Leu Thr Ala Pro Ile Val Ile Trp
                60                  65                  70

aag tat aag tcg ttc tgt cgg gac cgt gtt gcc gac gcc ttc tcc cct     292
Lys Tyr Lys Ser Phe Cys Arg Asp Arg Val Ala Asp Ala Phe Ser Pro
        75                  80                  85

gcc agc gtg gac aac cag ctc aac gcc cag ctg gcg gct ggc aac ccc     340
Ala Ser Val Asp Asn Gln Leu Asn Ala Gln Leu Ala Ala Gly Asn Pro
90                  95                  100                 105

ggc tac aac ccc tat gtg gag tgc cag gac agc gta cgc act gtc agg     388
Gly Tyr Asn Pro Tyr Val Glu Cys Gln Asp Ser Val Arg Thr Val Arg
                110                 115                 120

gtg gtg gcc acc aaa cag ggc aat gct gtg acc ctg gga gac tac tac     436
Val Val Ala Thr Lys Gln Gly Asn Ala Val Thr Leu Gly Asp Tyr Tyr
                125                 130                 135

cag ggc agg aga atc acc atc aca gga aat gct ggc ctg acc ttc gag     484
Gln Gly Arg Arg Ile Thr Ile Thr Gly Asn Ala Gly Leu Thr Phe Glu
        140                 145                 150

cag acg gcc tgg gga gac agt gga gtg tat tac tgc tcc gtg gtc tca     532
Gln Thr Ala Trp Gly Asp Ser Gly Val Tyr Tyr Cys Ser Val Val Ser
        155                 160                 165

gcc caa gat ctg gat ggg aac aac gag gcg tac gca gag ctc att gtc     580
Ala Gln Asp Leu Asp Gly Asn Asn Glu Ala Tyr Ala Glu Leu Ile Val
170                 175                 180                 185

ctt gtt tat gct gct ggc aaa gca gcc acc tca ggt gtg cca agc atc     628
Leu Val Tyr Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile
                190                 195                 200
```

38

```
tat gcc ccc agc atc tat acc cac ctc tct cct gcc aag act ccg cca        676
Tyr Ala Pro Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro
            205             210                 215

cct ccg cct gcc atg att ccc atg cgt cct ccc tat ggg tac cct gga        724
Pro Pro Pro Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly
            220             225                 230

gac ttt gac agg acc agc tca gtt ggt ggc cac agc tcc cag gtg ccc        772
Asp Phe Asp Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro
            235             240                 245

ctg ctg cgt gaa gtg gat ggg agc gta tct tca gaa gta cga agt ggc        820
Leu Leu Arg Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly
250             255             260                 265

tac agg atc cag gct aac cag caa gat gac tcc atg agg gtc cta tac        868
Tyr Arg Ile Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr
            270             275                 280

tat atg gag aag gag cta gcc aac ttc gat cct tcc cgg cct ggc cct        916
Tyr Met Glu Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro
            285             290                 295

ccc aat ggc cga gtg gaa cgg gcc atg agt gaa gta acc tcc ctc cat        964
Pro Asn Gly Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His
            300             305                 310

gaa gat gac tgg cga tct cgg cct tcc agg gct cct gcc ctc aca ccc       1012
Glu Asp Asp Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro
            315             320                 325

atc agg gat gag gag tgg aat cgc cac tcc cct cgg agt ccc aga aca       1060
Ile Arg Asp Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr
330             335             340                 345

tgg gag cag gaa ccc ctt caa gaa cag cca agg ggt ggt tgg ggg tct       1108
Trp Glu Gln Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser
            350             355                 360

ggg cgg cct cgg gcc cgc tct gtg gat gct cta gat gac atc aac cgg       1156
Gly Arg Pro Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg
            365             370                 375

cct ggc tcc act gaa tca gga agg tct tct ccc cca agt agt gga cgg       1204
Pro Gly Ser Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg
            380             385                 390

aga ggg cgg gcc tat gca cct ccg aga agt cgc agc cgg gat gac ctc       1252
Arg Gly Arg Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu
395             400             405

tat gac ccc gac gat cct aga gac ttg cca cat tcc cga gat ccc cac       1300
Tyr Asp Pro Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His
410             415             420                 425

tat tat gat gat ttg agg tct agg gat cca cgt gct gac ccc aga tcc       1348
```

39

```
Tyr Tyr Asp Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser
            430                     435                 440

cgt cag cga tcc cac gat cct cgg gat gct ggc ttc agg tca cgg gac    1396
Arg Gln Arg Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp
            445                     450                 455

cct cag tat gat ggg cga ctc tta gaa gag gct tta aag aaa aaa ggg    1444
Pro Gln Tyr Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly
            460                     465                 470

gct ggg gag aga aga cgc gtt tac agg gag gaa gaa gaa gaa gaa gag    1492
Ala Gly Glu Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu
        475                 480                 485

gag ggc cac tat ccc cca gca cct ccg cct tac tct gag act gac tcg    1540
Glu Gly His Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser
490                 495                 500                 505

cag gcc tcg agg gag cgg agg atg aaa aag aat ttg gcc ctg agt cgg    1588
Gln Ala Ser Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg
            510                 515                 520

gaa agt tta gtc gtc tga tcccacgttt tgttatgtag cttttatact           1636
Glu Ser Leu Val Val  *
            525

tttttaattg gaatattgat gaaactcttc accaagccta ataaaa               1682



<210> 16
<211> 594
<212> PRT
<213> Mus musculus


<400> 16
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1               5                   10                  15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20                  25                  30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35                  40                  45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
            85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
```

40

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
        115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130   135   140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Gly Arg Thr Ser Glu Ala
            180   185   190

Pro Glu Leu Leu Pro Gly Phe Arg Ala Gly Pro Leu Glu Asp Trp Leu
        195   200   205

Phe Val Val Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu
    210   215   220

Gly Ile Cys Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val
225   230   235   240

Arg Cys Pro Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr
            245   250   255

Ala Ala Gly Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro
            260   265   270

Ser Ile Tyr Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Pro
        275   280   285

Ala Met Ile Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp
    290   295   300

Arg Thr Ser Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg
305   310   315   320

Glu Val Asp Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile
            325   330   335

Gln Ala Asn Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu
        340   345   350

Lys Glu Leu Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly
        355   360   365

Arg Val Glu Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp
    370   375   380

Trp Arg Ser Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp
385   390   395   400

Glu Glu Trp Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln

Glu Pro Leu Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro
            420   425   430

Arg Ala Arg Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser
        435   440   445

Thr Glu Ser Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg
    450   455   460

Ala Tyr Ala Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro
465   470   475   480

Asp Asp Pro Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp
            485   490   495

Asp Leu Arg Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg
            500   505   510

Ser His Asp Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr
        515   520   525

Asp Gly Arg Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu
    530   535   540

Arg Arg Arg Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Gly His
545   550   555   560

Tyr Pro Pro Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser
            565   570   575

Arg Glu Arg Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu
            580   585   590

Val Val

<210> 17
<211> 575
<212> PRT
<213> Mus musculus

<400> 17
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1   5   10   15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20   25   30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35   40   45

Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50   55   60

42

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65   70   75   80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
              85   90   95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
              100   105   110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
          115   120   125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
      130   135   140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145   150   155   160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
              165   170   175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Asp Trp Leu Phe Val Val
              180   185   190

Val Val Cys Leu Ala Ser Leu Leu Phe Phe Leu Leu Leu Gly Ile Cys
          195   200   205

Trp Cys Gln Cys Cys Pro His Thr Cys Cys Cys Tyr Val Arg Cys Pro
    210   215   220

Cys Cys Pro Asp Lys Cys Cys Cys Pro Glu Ala Leu Tyr Ala Ala Gly
225   230   235   240

Lys Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr
              245   250   255

Thr His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile
              260   265   270

Pro Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser
          275   280   285

Ser Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp
    290   295   300

Gly Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn
305   310   315   320

Gln Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu
              325   330   335

Ala Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu
              340   345   350

Arg Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser
          355   360   365

43

Arg Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp
    370   375   380

Asn Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu
385   390   395   400

Gln Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg
            405   410   415

Ser Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser
            420   425   430

Gly Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala
            435   440   445

Pro Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro
    450   455   460

Arg Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg
465   470   475   480

Ser Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp
            485   490   495

Pro Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg
            500   505   510

Leu Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg
    515   520   525

Val Tyr Arg Glu Glu Glu Glu Glu Glu Glu Glu Gly His Tyr Pro Pro
    530   535   540

Ala Pro Pro Pro Tyr Ser Glu Thr Asp Ser Gln Ala Ser Arg Glu Arg
545   550   555   560

Arg Met Lys Lys Asn Leu Ala Leu Ser Arg Glu Ser Leu Val Val
            565   570   575

<210> 18
<211> 526
<212> PRT
<213> Mus musculus

<400> 18
Met Ala Pro Ala Ala Ser Ala Cys Ala Gly Ala Pro Gly Ser His Pro
1   5   10   15

Ala Thr Thr Ile Phe Val Cys Leu Phe Leu Ile Ile Tyr Cys Pro Asp
            20   25   30

Arg Ala Ser Ala Ile Gln Val Thr Val Pro Asp Pro Tyr His Val Val
        35   40   45

44

```
Ile Leu Phe Gln Pro Val Thr Leu His Cys Thr Tyr Gln Met Ser Asn
    50                  55                  60

Thr Leu Thr Ala Pro Ile Val Ile Trp Lys Tyr Lys Ser Phe Cys Arg
65                  70                  75                  80

Asp Arg Val Ala Asp Ala Phe Ser Pro Ala Ser Val Asp Asn Gln Leu
                85                  90                  95

Asn Ala Gln Leu Ala Ala Gly Asn Pro Gly Tyr Asn Pro Tyr Val Glu
            100                 105                 110

Cys Gln Asp Ser Val Arg Thr Val Arg Val Val Ala Thr Lys Gln Gly
            115                 120                 125

Asn Ala Val Thr Leu Gly Asp Tyr Tyr Gln Gly Arg Arg Ile Thr Ile
    130                 135                 140

Thr Gly Asn Ala Gly Leu Thr Phe Glu Gln Thr Ala Trp Gly Asp Ser
145                 150                 155                 160

Gly Val Tyr Tyr Cys Ser Val Val Ser Ala Gln Asp Leu Asp Gly Asn
                165                 170                 175

Asn Glu Ala Tyr Ala Glu Leu Ile Val Leu Val Tyr Ala Ala Gly Lys
            180                 185                 190

Ala Ala Thr Ser Gly Val Pro Ser Ile Tyr Ala Pro Ser Ile Tyr Thr
            195                 200                 205

His Leu Ser Pro Ala Lys Thr Pro Pro Pro Pro Ala Met Ile Pro
    210                 215                 220

Met Arg Pro Pro Tyr Gly Tyr Pro Gly Asp Phe Asp Arg Thr Ser Ser
225                 230                 235                 240

Val Gly Gly His Ser Ser Gln Val Pro Leu Leu Arg Glu Val Asp Gly
            245                 250                 255

Ser Val Ser Ser Glu Val Arg Ser Gly Tyr Arg Ile Gln Ala Asn Gln
            260                 265                 270

Gln Asp Asp Ser Met Arg Val Leu Tyr Tyr Met Glu Lys Glu Leu Ala
            275                 280                 285

Asn Phe Asp Pro Ser Arg Pro Gly Pro Pro Asn Gly Arg Val Glu Arg
    290                 295                 300

Ala Met Ser Glu Val Thr Ser Leu His Glu Asp Asp Trp Arg Ser Arg
305                 310                 315                 320

Pro Ser Arg Ala Pro Ala Leu Thr Pro Ile Arg Asp Glu Glu Trp Asn
            325                 330                 335

Arg His Ser Pro Arg Ser Pro Arg Thr Trp Glu Gln Glu Pro Leu Gln
            340                 345                 350
```

45

```
Glu Gln Pro Arg Gly Gly Trp Gly Ser Gly Arg Pro Arg Ala Arg Ser
        355             360             365

Val Asp Ala Leu Asp Asp Ile Asn Arg Pro Gly Ser Thr Glu Ser Gly
        370             375             380

Arg Ser Ser Pro Pro Ser Ser Gly Arg Arg Gly Arg Ala Tyr Ala Pro
385             390             395             400

Pro Arg Ser Arg Ser Arg Asp Asp Leu Tyr Asp Pro Asp Asp Pro Arg
            405             410             415

Asp Leu Pro His Ser Arg Asp Pro His Tyr Tyr Asp Asp Leu Arg Ser
            420             425             430

Arg Asp Pro Arg Ala Asp Pro Arg Ser Arg Gln Arg Ser His Asp Pro
        435             440             445

Arg Asp Ala Gly Phe Arg Ser Arg Asp Pro Gln Tyr Asp Gly Arg Leu
        450             455             460

Leu Glu Glu Ala Leu Lys Lys Lys Gly Ala Gly Glu Arg Arg Arg Val
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54

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55

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56

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57

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58

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59

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<221> Misc_Feature
<222> 8604
<223> diverging nucleotide, C in ref genbank:AD000684

<221> Misc_Feature
<222> 8928
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<221> Misc_Feature
<222> 9021
<223> diverging nucleotide, G in ref genbank:AD000684

<221> Misc_Feature
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<221> Misc_Feature
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<221> Misc_Feature
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<221> Misc_Feature
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<221> Misc_Feature
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<221> Misc_Feature
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<221> Misc_Feature
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<222> 14912
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<221> Misc_Feature
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<221> Misc_Feature
<222> 1..21721
<223> n= a,g,c or t

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tgcactattt acaatagtca aaaggtagaa acaacctagg tccatccaca aatgaatgga   180

taaataaaac gtagcatata catacaatgg tacactagtc cgctgtaaaa agaaattttg   240

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